USER MANUAL

DMX Ethernet Gateway

(AC4)

Manual Version: **4.0.10**
Release Date: **September. 18th.2014**

Astera LED Technology GmbH
Address : Nahestrasse 68-70, 55593 Rüdesheim an der Nahe, Germany Tel.: +49(0)6536-355361 Email: sales@astera-led.com

1 Table of Contents

1 Table of Contents 2
2 Safety 3
3 Quick Start 4
3.1 Advantages 4
3.2 Overview 5
3.3 Buttons 6
4 Operation 7
4.1 Selecting the input signal 7
4.2 Connecting lightsources 7
4.2.1 Define the output mode 7
4.2.2 Define the amount of connected pixels 8
4.3 Testing the installation 8
5 Advanced Operation 9
5.1 Configuration of connected lightsources or controllers 9
5.1 Firmware update of connected lightsources or controllers 9
5.1 Network Settings 9
6 Settings of the MENU 11
7 Troubleshooting 16
8 Disposal 17
9 Technical Specifications 18
10 Appendix : Overview of Programs 19

2 Safety

Before you operate the unit, read this manual carefully.
Make sure to keep the manual, in case you need to consult this manual again or you give the unit to another person.
Always make sure to include this manual if you hand out the unit to another person.
Keep in mind that this manual cannot address all possible dangers and environments. Please use your own caution when operating.

Only qualified personnel may repair this product.
Don't open the case.

Do not operate the unit in areas with high temperature condition or outdoors. It will cause abnormal function or damage the product.

3 Quick Start

Astera's AC4 is an advanced LED controller that can handle a range of protocols and control up to 1000 lightsources. For an easy navigation among its functions and for addressing of the lamps, the AC4 has a control panel with display.

Input protocols

ART3:	Astera’s Wireless DMX transmitter can send data from a remote DMX console to the AC4 controller
ARC2	Control the connected lamps from the Astera remote control
Artnet	Use an Artnet software to display complex effects and shapes with the connected lightsources
Standalone	The AC4 has 20 basic effects pre-programmed that can be customized in speed, fade, colors etc. (Refer to Appendix 1 for a list of the effects)

Output protocols

DMX	Control 4 universes of DMX lamps
Astera 250	Control up to 4x170 Astera fixtures with the Astera 250 protocol which has a higher refresh rate and is more stable than DMX
Astera 500	Control up to 4x250 Astera fixtures with the Astera 500 protocol which is more stable than DMX and can control more fixtures than DMX

3.1 Advantages

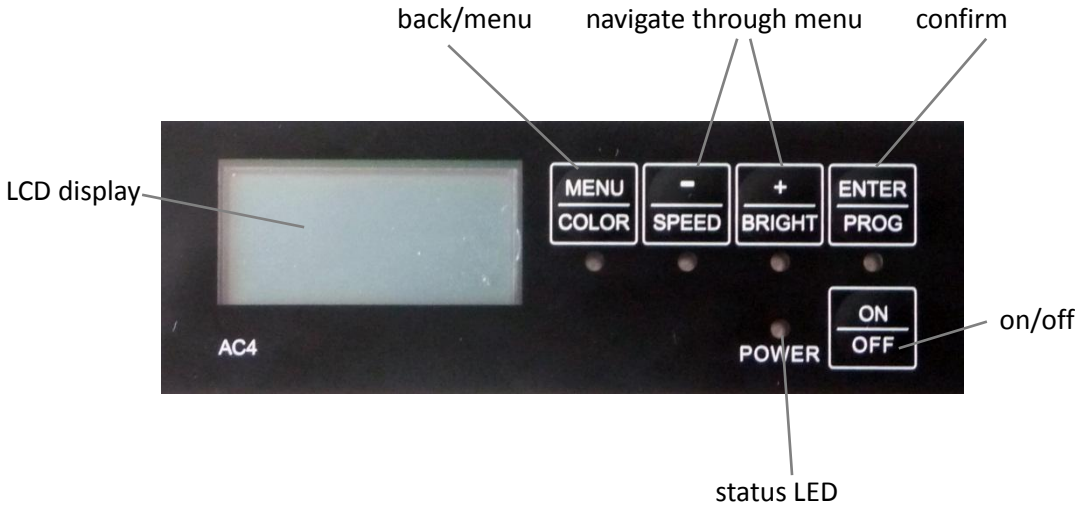
Flexible --- The can be used to control a large range of LED lightsources from a large range of control protocols. The controller features different input sockets and a SD cardslot to play pre-recorded sequences. Navigation between the numerous settings can be done over the built-in control console.

Powerful --- The AC4 can control a huge number of individually controllable lightsources. Power can be distributed through the AC4 or can be directly routed to the lamps.

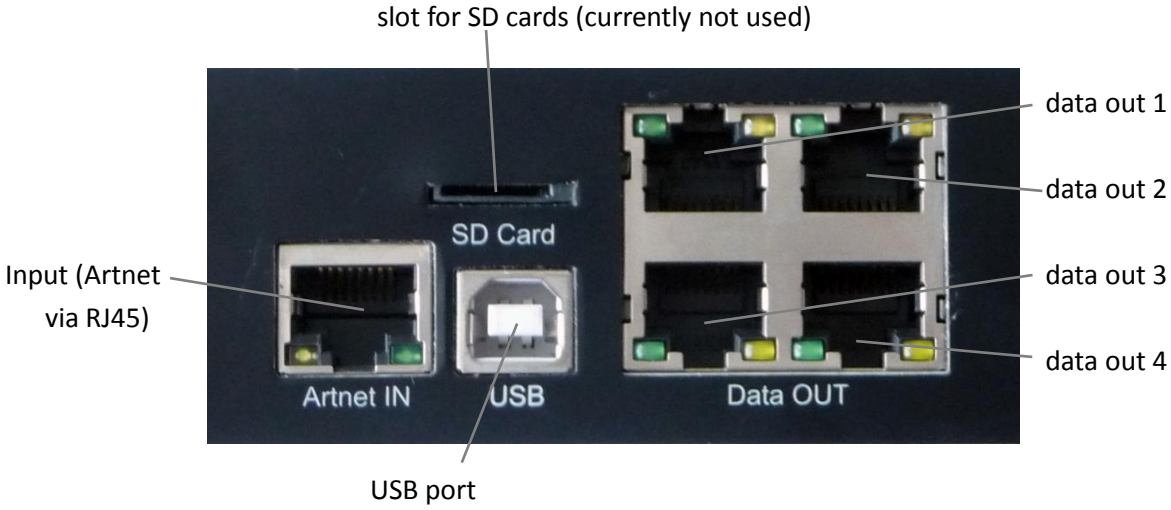
Supports standards --- The AC4 supports Artnet and DMX standards as well as Astera’s standards. Throught its RF receiver, the AC4 can be easily integrated into setups of Astera fixtures and can be controlled wirelessly out of the distance.

3.2 Overview

Control panel



Sockets



3.3 Buttons

MENU/COLOR	Go back one level. If pressed >3 second: enter menu. For details on the menu, see Chapter 6
+ -	When in the menu: Navigate through the menu and adjust parameters, like fade, speed, brightness.
-/SPEED	Change the speed of the light effect. A time between 0.09 seconds and 9 minutes 11 seconds can be set. It reflects the duration of the selected program.
+/BRIGHT	The brightness of the LEDs can be changed from 0%-100% in 10% intervals. By holding down the +/-.
ENTER/PROG	Change program (color transitions). When in the menu: Choose menu item, save edited value or start sending a value.
ON/OFF	Press >3 seconds to power on, press short to power off
C1 C2 C3 C4 USER COLORS	All programs consist of one to four user colors (except in **RAINBOW** program which uses predefined colors that cannot be changed). For example, if **PROGRAM** is set to **SIMPLE RUNNING**, the background color will be C1, and the color of the running pixel will be C2. The following standard colors are available: **RED**, **ORANGE**, **YELLOW**, **GREEN**, **CYAN**, **BLUE**, **MAGENTA**, **PINK**, **WHITE WARM**, **WHITE COLD**, **BLACK**. If a larger selection of colors is required, there are two possibilities: 1. choose from a predefined list of **INDEX COLORS** (hold down color key C1..C4 for one second). 2. enter the menu, and set colors by their RGB values (located under: "**AUTO SETTINGS**" -> "**USER COLORS**").

4 Operation

4.1 Selecting the input signal

Hold down the Menu button for 3 seconds to enter the menu. Confirm INPUT SELECT with the Enter button. Than select the input:

- **AUTO:** choose the input automatically from the latest signal

- **ART-NET:** receives Artnet signals from the RJ45 port (looks like a Ethernet cable). For this, you need a PC with ARTNET software such as Madrix, e:cue etc.

- **STANDALONE:** uses signals from the AC4's software itself. For example you can run basic program-effects like RAINBOW, ONE COLOR FADE, SPIRAL 4 COLORS etc and customize them later with colors, fade, speed etc.

- **REMOTE CONTROL:** plays the same effects that STANDALONE can play but the effects are chosen from the ARC2 remote control (sold separately)

- **WIRELESS DMX:** DMX signals can be transmitted from an ART3 wireless DMX transmitter (sold separately) to the AC4. The ART3 transmits 1 DMX universe.

4.2 Connecting lightsources

Strings of LED lightsources can be connected to each of the AC4's 4 output sockets. After connecting them, the output mode and the amount of connected pixels have to be defined in the AC4's menu.

4.2.1 Define the output mode

Hold the Menu button for 3 seconds to enter the menu. Press the + button until you reach OUTPUT SETTINGS and confirm with Enter. Press the + button until you reach OUT 1: MODE, OUT 2: MODE etc. Than input a selection:

- DMX if you have connected DMX fixtures to this output
- ASTERA250 if you have connected an Astera lightsource or controller that supports this standard
- ASTERA500 if you have connected an Astera lightsource or controller that supports this standard

Note: the AC4 has 4 outputs and you have to select the signal of each of the 4 outputs. It also means that you can connect DMX fixtures to one of the outputs and Astera250 fixtures to another output.

4.2.2 Define the amount of connected pixels

Hold the Menu button for 3 seconds to enter the menu. Press the + button until you reach OUTPUT SETTINGS and confirm with Enter. Press the + button until you reach OUT 1: PIXELS. Select the amount of connected pixels. This is important to display the AC4's effects correctly. If you do not have any lightsources connected to one of the outputs, leave this number as 0.

When running the DMX mode you can choose between 0 and 170 connected pixels of each of the ouputs for a total of 680 ouputs. When in the Astera250 mode you can also choose between 0 and 170 connected pixels of each of the outputs but you will have a better refresh rate and automatic error correction. When in the Astera500 mode you can choose between 0 and 250 pixels so you can connect up to 1000 different lightsources to the AC4 to display complex effects over a large amount of pixels.

4.3 Testing the installation

The AC4 has a range of pre-programmed effects which can be used to test if the connected lightsources are fully working and are set up correctly. Also, the pre-programmed effects allow a standalone operation without a DMX or Artnet source.

Leave the menu by pressing the Menu button until you see ONE COL FADE. Press the Enter button once and use the + and – buttons to switch between programs. SPIRAL 4 COLORS is good to test if the addressing of the connected lamps is set correctly. Confirm this program with the Enter button. To check if all Red, Green and Blue LEDs are working, select the One Color Static program and confirm with Enter. Then, press the Color button and select Red, Green or Blue. All connected lightsources should show exactly this one color. You can find an overview over all pre-programmed effects in the appendix.

5 Advanced Operation

5.1 Configuration of connected lightsources or controllers

Since most connected lightsources do not have a data port, display our keyboard to input advanced commands such as individual DMX addresses, pixel count, color calibration etc, the AC4 can be used to send these commands to a single lightsource or several lightsources connected in a chain.

To transfer this information to the lightsources, edit the configuration file (= .cc9 file), dopy it on a micro SD card and insert it into the SD card slot. Then, hold the Menu button for 3 seconds to enter the menu, choose Output Settings, then Lamp Config and confirm with Enter. The configuration file will be sent to the lightsource.

5.1 Firmware update of connected lightsources or controllers

In the same manner as configuring described in chapter 5.1 you can send a new firmware to lightsources and controllers. This might bring additional features, and erase bugs. You can connect multiple devices to the AC4 and update all of them at the same time.

To transfer a new firmware to the lightsources or controller, copy the firmware onto a SD card and insert it into the SD card slot. Then, hold the Menu button for 3 seconds to enter the menu, choose Output Settings, then Lamp Update and confirm with Enter. Choose the new firmware and confirm with Enter. The firmware file will be sent to the lightsource. When having several controllers connected in series the update will take longer. Therefore the display will show SENDING…completed 1x. Wait until the number before the “x” equals the number of connected devices. To update 4 controllers connected in series to the AC4, wait until the display shows “4x”. Press Enter after the right amount of “x” has been reached.

5.1 Network Settings

If you have connected one or several AC4 units to a computer, you need to define network settings of your DMX/ Artnet software and of your AC4 controller. Please refer to manual of your software how to connect to devices such as the AC4 that are connected via an IP network.

Software we recommend to use for testing your AC4 in a network environment is *DMX-Workshop* from Artistic License (www.artisticlicense.com), downloadable from their website free of charge.

The AC4 allows several ways of Network communication, known as IP modes:

- **2.x auto IP:** allows to be detected by a DMX or Artnet software as an 2.x IP address

- **10.x auto IP:** allows to be detected by a DMX or Artnet software as an 10.x IP address

- **custom IP:** You can choose any custom IP address of the AC4 and then connect to it via your DMX or Artnet software. Go to menu > Network Settings > Custom IP to define the address

- **DHCP:** The Dynamic Host Configuration Protocol allows automatic detection by the PC. Make sure to set the subnet mask as well.

6 Settings of the MENU

Hold MENU key for 1 second to enter the menu. While in the menu, confirm with enter and use the menu button to go up one level of the navigation. While the system is waiting for a selection you cannot go up one level.

INPUT SELECT

- **WIRELESS DMX**
  The unit uses the RF signal sent by the Wireless DMX Transmitter ART3
- **REMOTE CONTROL**
  The unit uses the RF signal sent by the ARC2 Remote Control
- **STANDALONE**
  The unit ignores all incoming signals and can only be operated through its control panel
- **ART-NET**
  The unit uses the Artnet signal arriving from the RJ45 port
- **AUTO**
  The unit operates in auto mode and chooses any incoming signal

AUTO SETTING

- **PROGRAM**
  Chooses one of 20 pre-defined programs that can be customized with colors, intensity, power scheme, speed, fade, directions, etc.
- **INTENSITY**
  Sets the brightness of the LEDs
- **SPEED**
  Sets the speed of the programs
- **FADE**
  Sets the Fade between program steps
- **DIRECTION**
  Adjusts direction and looping of programs
  - **FFW+LOOP**
    Programs run in normal (forward) direction, when a program is finished, it starts again
  - **REV+LOOP**
    Programs run in reversed direction, when a program is finished, It starts again.
  - **FWD**
    Programs run in normal (forward) direction, when a program is finished, execution is stopped
  - **REV**
    Programs run in reversed direction, when a program is finished, it stops

CHASER

Set different color chasers

CHASER SPEED

Sets the speed of the color chaser

GROUPS

Assigns the lamp to 1 of 4 groups so they can easily targeted

OFFSET

Offset defines where the LOCAL GROUP starts. Usually this is set automatically by the lamp, depending how many other lamps are in a group.

CHAIN SIZE

Choose how long the chain should become

PCS IN CHAIN

Choose the position the unit should take in the

SET SIZE

Choose how long the set should become

POS IN SET

Choose the position the unit should take in the set

USER COLORS

Settle RGB colors and the brightness.

DMX SETTINGS

DMX ADDRESS

Sets the DMX-address

CHANNELS

Sets the amount of channels that is used to control 1 unit. 1 RGB channel means that the whole unit has the same color. A larger amount of channels mean that one unit displays several colors at the same time.

DMX TAB

Several different DMX tables can be chosen

RGB S RGB S..

For each pixel there are three channels RGB and one channel stroboscope.

RGB RGB S S ..

For each pixel there are three channels RGB and one channel stroboscope.

EFFECT MODE FIX

The 4 user colors are controlled

by one channel per color (generates basic colors).

EFFECT MODE RGB

The 4 user colors are controlled by three DMX channels each.

STROBE

Sets a series of strobe effects

SINGLE

One DMX channel is supplied for the control of the stroboscope function and all

pixels will strobe Identical. When using this setting, DMX TAB should not be set to RGB S RGB S ..

- **MULTIPLE**
  For each pixel, the stroboscope can be controlled individually.
- ***OFF***
  Stroboscope is turned off globally. One DMX channel is supplied for the control of the stroboscope function and all pixels will strobe Identical.
  When using this setting, DMX TAB should not be selected.

DMX FAIL

This model is capable of detecting a loss of AC power (if plugged in).
It might be desirable to make the unit react on those conditions:

- **HOLD**
  The output keeps unchanged, the last received DMX frame is displayed.
- **EMERGENCY LIGHT**
  LEDs turn white until AC power is restored.
- **BLACKOUT**
  LEDs turn dark in case of AC power loss.
- **AUTO PROGRAM**
  plays the program specified in AUTO SETTINGS > PROGRAMS

GERNERAL SETTINGS

LED POWER

Three different power schemes can be set to optimize the playback

- **MAXIMISE RUNTIME**
  the lamps are less bright but the battery will last up to 24 hours
- **NORMAL**
  the lamps are normal brightness and the battery will last at least 8 hours
- **HIGH BRIGHTNESS**
  The lamps are set to a brightness that is stronger than usual but will drain the battery quickly

BELONGS TO SET #

Assigns the lamp to 1 of 255 sets so they can easily targeted

WHITE CORRECTION

turns the white correction on or off

WHITE CALIB RED

adds or reduces the amount of red when displaying white light

WHITE CALIB GREE

adds or reduces the amount of green when displaying white light

WHITE CALIB BLUE

adds or reduces the amount of blue when displaying white light

AC FAILURE

sets the behaviour when no AC signal is detected (power outage etc)

- **EMERGENCY LIGHT**
  If no AC signal is detected, the light turns white

NO ACTION

The playback continues as before

BLACKOUT

If no AC signal is detected, all lights are turned off

CONTRAST

sets the contrast of the display between 1 and 48

OUTPUT SETTINGS

OUT1: MODE

sets the outgoing protocol of data output 1 (see Chapter 5.1.1)

OUT2: MODE

sets the outgoing protocol of data output 2 (see Chapter 5.1.1)

OUT3: MODE

sets the outgoing protocol of data output 3 (see Chapter 5.1.1)

OUT4: MODE

sets the outgoing protocol of data output 4 (see Chapter 5.1.1)

OUT1: PIXELS

sets the amount of pixels of data output 1 (see Chapter 5.1.2)

OUT2: PIXELS

sets the amount of pixels of data output 1 (see Chapter 5.1.2)

OUT3: PIXELS

sets the amount of pixels of data output 3 (see Chapter 5.1.2)

OUT4: PIXELS

sets the amount of pixels of data output 4 (see Chapter 5.1.2)

LAMP CONFIG

sends configuration data to lightsources or controlers (see Chapter 5.1)

LAMP UPDATE

sends the firmware update file to lightsources or controlers (see Chapter 5.2)

NETWORK SETTINGS

IP MODE

sets the way PC and AC4 communicate

2.x. AUTO IP

allows to be detected by a DMX or Artnet software as an 2.x IP address

10.x. AUTO IP

allows to be detected by a DMX or Artnet software as an 2.x IP address

CUSTOM IP

Set an IP address in the AC4 which can be detected by the PC

DHCP

Communicate over a DHCP network

CUSTOM IP

Choose the AC4's IP address (only relevant when choosing the IP mode csustom IP)

CUSTOM NETMSK

Defines the Netmask under which the AC4 is operating

INFO

SERIAL

shows the serial number of the unit

FIRMWARE VERSION

shows the firmware version or the unit

HOURS

shows the number of hours the unit has been played (P) and charged (C)

RF LINK

an advanced function for testing the signal strength together with the ARC2

RADIO PIN

The Radio Pin makes it possible for different customers to operate their lamps at the same place without influencing other lamps. The 4-digit pin can be set to a unique value and paired with selected lamps. To activate the radio pin, choose a pin on AC4 and the ARC2 remote control, then press PAIR WITH LAMPS on the ARC2.

FACTORY RESET

Resets all settings of the menu to its factory defaults.

Confirm with enter or abort with the menu button

7 Troubleshooting

Faulty condition	*Cause*	*Troubleshooting*
The display of a unit is showing BLACKOUT, and there is no light output.	Installation was switched off by the ARC2.	Take the ARC2, press the power button, and select LIGHTS ON.
No LED light of the connected lightsources when the unit is switched on	Cause 1: The AC4 does not have the correct input.	Switch INPUT to one of the AC4's pre-programmed effects such as ONE COL STATIC to make sure that everything else is set correctly. If this works, try re-adjusting the input values (refer to chapter 4.2.1)
	Cause 2: Lightsources are not connected correctly.	Dis-connect and re-connect the lightsources.
	Cause 3: Output is not set correctly	Set the output mode and amount of output pixels in each output socket (refer to chapter 4.2.2).
Some of the connected lights behave incorrectly (but others are correct)	Output is not set correctly	Set the output mode and amount of output pixels in each output socket (refer to chapter 4.2.2)
System cannot be turned on.	Power cable not connected correctly.	Connect both power cords to the AC4.

8 Disposal

Follow local ordinances and/or regulations for disposal!

PACKAGING:

The unit is shipped in protective packaging.
This packaging can be recycled!

UNIT:

Don't throw the unit into the garbage at the end of its lifetime.
Make sure to dispose is according to your local ordinances and/or regulations, to avoid polluting the environment!

BATTERIES:

Don't throw empty batteries into the garbage!

Bring them to a collecting point for used batteries!

9 Technical Specifications

Power supply	
Input voltage	*Input 1: 100-240VAC, 50/60Hz* *Input 2: 29VDC, 2.5A*
Power supply unit	*built-in*

Protocols	
Input protocols	*Artnet, ARC2, ART3*
Output protocols	*DMX, Astera250, Astera500*

Controlling	
Built-in controller	*Backlit display with 5 buttons*
DMX	*Wireless-DMX via Astera ART3 Transmitter*
RF Control	*Over Astera's ARC2 Remote Control*

Radio Frequency	
Range	*50m up to 300m*
Frequency	*868.000 MHz – 869.750 MHz*

Housing	
Material	*Plastic*
Size	*L220 x W150 x HW45 mm (L8.7" x W5.9" x H1.8")*
Weight	*0, 450 kg (1.2lb)*

Environment	
Operation Temperature	5 ~ 40 °*C*
Storage Temperature	-25 °C – 55 °C
Environment	Indoors

10 Appendix : Overview of Programs

Name	*Light Effect*	*Used colors*
ONE COLOR STATIC	All pixels show the same color	C1
TWO COLOR STATIC	Same as **ONE COLOR STATIC**, but not all pixels show the same color, they are divided into 2, 3 or 4 parts.	C1 C2
THREE COLOR STATIC		C1 C2 C3
FOUR COLOR STATIC		C1 C2 C3 C4
ONE COLOR FADE	All pixels show the same color, but the color changes between all four **USER COLORS**.	C1 C2 C3 C4
TWO COLOR FADE	Same as **ONE COLOR FADE**, but not all pixels show the same color, they are divided into 2, 3 or 4 parts.	C1 C2 C3 C4
THREE COLOR FADE		C1 C2 C3 C4
FOUR COLOR FADE		C1 C2 C3 C4
SIMPLE RUNNING	All pixels have C1 color, except one, that is running over them with C2.	C1 C2
DOUBLE RUNNING	Same as **SIMPLE RUNNING**, but two pixels are running over the background, in opposite directions.	C1 C2
TWO COL RUNNING	Same as **DOUBLE RUNNING**, but the two pixels are of different color.	C1 C2 C3
FLAG RUNNING	A “flag” consisting of three color stripes is running over the background.	C1 C2 C3 C4
DOUBLE FLAG RUNNING	Same as **FLAG RUNNING**, but two flags are running in opposite directions.	C1 C2 C3 C4
SPIRAL 4 COLORS	The color of all pixels is changing pixel by pixel from one color to the next. If the geometry of the unit allows it, the direction is circular.	C1 C2 C3 C4
SPIRAL 2 COLORS	Same as **SPIRAL 4 COLORS**, but the movement starts at both and in opposite directions, and moves back after all pixels are changed.	C1 C2
RAINBOW	A moving rainbow is shown on the units.	none
FIRE	A flickering fire-like effect is displayed. C1 is the background color, randomly pixels flash and flicker with C2.	C1 C2
ROTOR	The rotor programs are much like the **FADE** programs, but if the units are of tower-like shape, then a clockwise running rotor can be seen.	C1 C2 C3 C4
ROTOR SPLIT 2	Same as **ROTOR**, but two rotors in opposite directions are running.	C1 C2 C3 C4
ROTOR SPLIT 4	Same as **ROTOR**, but four rotors in opposite directions are running.	C1 C2 C3 C4

This instruction manual is part of the device and persons operating the device must have access to it at any time. Safety precautions mentioned in the instruction manual have to be observed.
If the device is being sold, this instruction manual has to be included.

Translations

If the device is being sold, this instruction manual has to be translated into the national language of the destination country.
If discrepancies occur in the translated text, the original instruction manual has to be used to solve them or the manufacturer has to be contacted.

©2013, Astera Led Technology GmbH
All rights reserved
Rüdesheim an der Nahe, Germany